IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

1-7. (Canceled).

8. (Currently Amended) A method of locating systematic defects in integrated circuits, said method comprising:

performing preliminary extracting and index processing of a circuit design comprising:

transforming shapes in a circuit layout into feature vectors by finding intersections between basis patterns and said shapes in said circuit layout; and

comparing said feature vectors to produce an index of feature vectors; and

after performing said preliminary extracting and index processing, performing a process of feature searching comprising:

identifying a defect region of said circuit layout;

transforming shapes in said defect region into defect vectors by finding intersections between basis patterns and said shapes and said defect region; and

finding feature vectors that are similar to said defect ~~vector~~ vectors using said index of feature vectors.

9. (Original) The method in claim 8, further comprising analyzing similarities and differences between said defect vectors and said feature vectors that are similar to said defect vectors.

10. (Currently Amended) The method in claim 8, further comprising, after said comparing ~~process~~ said feature vectors, storing said feature vectors and said index of feature vectors in a database, wherein said database is used for multiple different ~~features~~ feature searching processes.

11. (Currently Amended) The method in claim 8, further comprising, before said comparing ~~process~~ said feature vectors, performing sampling on said feature vectors to eliminate redundant feature vectors.

12. (Original) The method in claim 8, further comprising maintaining coordinate location information of said feature vectors within said circuit design.

13. (Currently Amended) The method in claim 8, wherein said preliminary extracting and index processing is performed for a first window size and, wherein said method further comprises repeating said preliminary extracting and index processing for different window sizes.

14. (Currently Amended) The method in claim 13, wherein said ~~process of~~ finding feature vectors comprises using feature vectors that have a window size matching a window size of said defect region.

15. (Currently Amended) A method of locating systematic defects in integrated circuits, said method comprising:

performing preliminary extracting and index processing of a circuit design comprising:

establishing a window grid for said circuit design;

merging basis patterns with shapes in said circuit design within each window of said window grid;

transforming shapes in [[a]] each window into feature vectors by finding intersections between said basis patterns and said shapes in said ~~windows~~ each window; and

comparing said feature vectors to produce an index of feature vectors; and

after performing said preliminary extracting and index processing, performing a process of feature searching comprising:

identifying a defect region window of said circuit layout;

merging basis patterns with shapes in said defect region window;

transforming shapes in said defect region window into defect vectors by finding intersections between basis patterns and said shapes in said defect region; and

finding feature vectors that are similar to said defect ~~vector~~ vectors using said index of feature vectors.

16. (Original) The method in claim 15, further comprising analyzing similarities and differences between said defect vectors and said feature vectors that are similar to said defect vectors.

17. (Currently Amended) The method in claim 15, further comprising, after said comparing

~~process~~ said feature vectors, storing said feature vectors and said index of feature vectors in a database, wherein said database is used for multiple different ~~features~~ feature searching processes.

18. (Currently Amended) The method in claim 15, further comprising, before said comparing ~~process~~ said feature vectors, performing sampling on said feature vectors to eliminate redundant feature vectors.

19. (Original) The method in claim 15, further comprising maintaining coordinate location information of said feature vectors within said circuit design.

20. (Currently Amended) The method in claim 15, wherein said preliminary extracting and index processing is performed for a first window size and, wherein said method further comprises repeating said preliminary extracting and index processing for different window sizes.

21. (Currently Amended) The method in claim 20, wherein said ~~process of~~ finding feature vectors comprises using feature vectors that have a window size matching a window size of said defect region.

22. (Currently Amended) A method of locating systematic defects in integrated circuits, said method comprising:

performing preliminary extracting and index processing of a circuit design comprising:

establishing a window grid for said circuit design;

merging basis patterns with shapes in said circuit design within each window of said window grid;

transforming shapes in [[a]] each window into feature vectors by finding intersections between said basis patterns and said shapes in said ~~windows~~ each window; and

comparing said feature vectors to produce an index of feature vectors; and

after performing said preliminary extracting and index processing, performing a process of feature searching comprising:

identifying a defect region window of said circuit layout;

merging basis patterns with shapes in said defect region window, wherein said merging process includes rotating and mirroring said shapes in said defect region window;

transforming shapes in said defect region window into defect vectors by finding intersections between basis patterns and said shapes in said defect region window; and

finding feature vectors that are similar to said defect ~~vector~~ vectors using representative feature vectors from said index of feature vectors.

23. (Original) The method in claim 22, further comprising analyzing similarities and differences between said defect vectors and said feature vectors that are similar to said defect vectors.

24. (Currently Amended) The method in claim 22, further comprising, after said comparing ~~process~~ said feature vectors, storing said feature vectors and said index of feature vectors in a database, wherein said database is used for multiple different ~~features~~ feature searching processes.

25. (Currently Amended) The method in claim 22, further comprising, before said comparing ~~process~~ said feature vectors, performing sampling on said feature vectors to eliminate redundant feature vectors.

26. (Original) The method in claim 22, further comprising maintaining coordinate location information of said feature vectors within said circuit design.

27. (Currently Amended) The method in claim 22, wherein said preliminary extracting and index processing is performed for a first window size and, wherein said method further comprises repeating said preliminary extracting and index processing for different window sizes.

28. (Currently Amended) The method in claim 27, wherein said ~~process of~~ finding feature vectors comprises using feature vectors that have a window size matching a window size of said defect region.

29-35. (Canceled).